

SAFETY LOOP NOTES

THE FOLLOWING CHART MUST BE UTILIZED WHEN INSTALLING A LOOP USED FOR VEHICLE DETECTION. THIS CHART LISTS THE PREDETERMINED NUMBER OF TURNS THAT MUST BE MADE BY THE ACTUAL LOOP WIRES IN ORDER TO CREATE AN ACCEPTABLE INDUCTANCE RANGE.

LOOP DIMENSION	NUMBER OF TURNS	LOOP AREA
A) 2' X 6'	6	A) 6 - 12
B) 2'-6" X 6'	5	B) 12 - 20
C) 4' X 8'	4	C) 20 - 60
D) 6' X 9'	3	D) 60 - 240
E) 12' X 20'	2	E) 240 & UP

DUE TO THE LOSS OF INDUCTANCE CAUSED BY A DISTANCE GREATER THAN 490 FEET FROM THE LOOP TO THE GATE DEVICE, AN ADDITIONAL TURN OF LOOP WIRE IS RECOMMENDED DURING INSTALLATION.

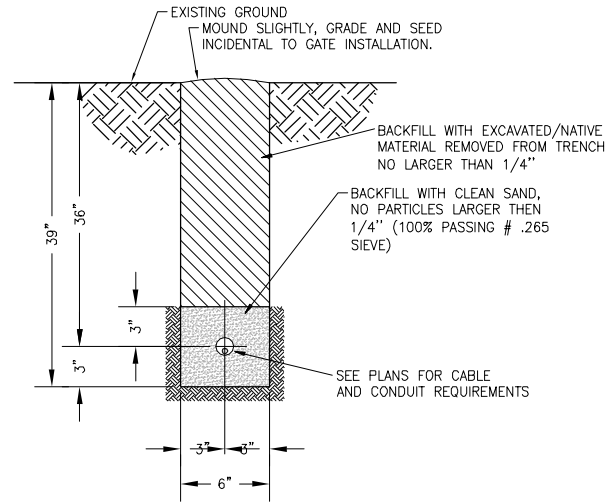
A CLEAN, SMOOTH SAW SLOT MUST BE CUT INTO THE PAVEMENT WHERE THE LOOP IS TO BE INSTALLED. THE INDUSTRY STANDARD REQUIRES THIS SLOT TO BE A MINIMUM OF 1-1/2" AND A MAXIMUM OF 3-1/2" DEEP AS A GENERAL RULE. WHEN A SOFTER PAVEMENT MATERIAL IS PRESENT, THE GREATER SAW CUT DEPTH IS PREFERRED. THIS PROTECTS THE LOOP WIRES FOR A LONGER PERIOD OF TIME.

AFTER THE LOOP SAW SLOTS HAVE BEEN CLEARED OUT, PROCEED TO TUCK THE WIRE IN THE SLOTS WITH AN OBJECT THAT WILL NOT INJURE THE WIRE INSULATION. WIND THE ACTUAL LOOP WITH #14 THHN STRANDED WIRE OR EQUIVALENT. THE WIRE MUST BE RATED FOR DIRECT BURIAL AND IMPERVIOUS TO MOISTURE. THIS WILL AVOID CHANGES IN THE DIELECTRIC CONSTANT OF THE WIRE INSULATION WHICH MAY CAUSE EXCESSIVE INDUCTANCE DRIFT. IT IS EXTREMELY IMPORTANT THAT THE LOOP BE WOUND WITH ONE CONTINUOUS LENGTH OF WIRE. THERE ARE ABSOLUTELY NO SPLICES PERMITTED!

THE TWO WIRES THAT LEAVE THE LOOP AT THE CURB OR PAVEMENT AFTER THE LOOP HAS BEEN PROPERLY WOUND, MUST BE TWISTED AT A MINIMUM OF 5 TURNS PER FOOT AND TAPED TOGETHER WITH (UL) APPROVED ELECTRICAL TAPE TO PREVENT THE WIRES FROM MOVING. FAILURE TO TWIST AND SECURE THESE WIRES MAY PRODUCE A FALSE SIGNAL FROM THE LOOP.

WHEN THE LOOP INSTALLATION HAS BEEN COMPLETED, CHOOSE A SEALANT THAT CLOSELY MATCHES THE TYPE OF PAVEMENT MATERIAL PRESENT. INDUSTRY RECOMMENDS (3M) LOOP DETECTOR SEALANT. HARD SETTING EPOXIES SHOULD NOT BE USED WITH ASPHALT. AVOID HIGH TEMPERATURE SEALANTS.

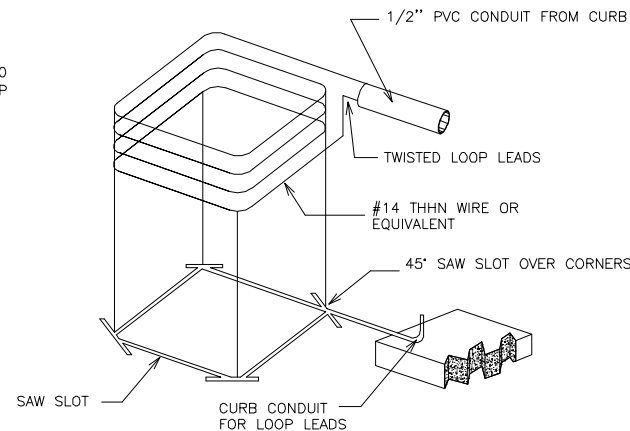
VEHICLE DETECTION LOOPS SHALL BE TWO PER GATE AND BE CONFIGURED FOR SAFETY ONLY. ALL LOOPS SHALL BE INSTALLED TO MANUFACTURE'S SPECIFICATIONS AND FIELD LOCATED BY CONTRACTOR AND ENGINEER. LOOPS SHALL BE SAWCUT INTO SOUND PAVEMENT. WHERE PAVEMENT IS CRACKED, BROKEN OR OTHERWISE UNSOUND, LOOPS SHALL BE INSTALLED IN SCHEDULE 80 PVC AND LOCATED IN THE GRANULAR BASE PRIOR TO NEW PAVING BY OTHERS.



CONDUIT TRENCH DETAIL
NTS

NOTE:

WARNING DO NOT INSTALL LOOP WITHIN 12 INCHES OF ANY CABLES OR CONDUITS.
DO NOT INSTALL LOOP WITHIN 2 INCHES OF ANY STEEL REINFORCEMENTS

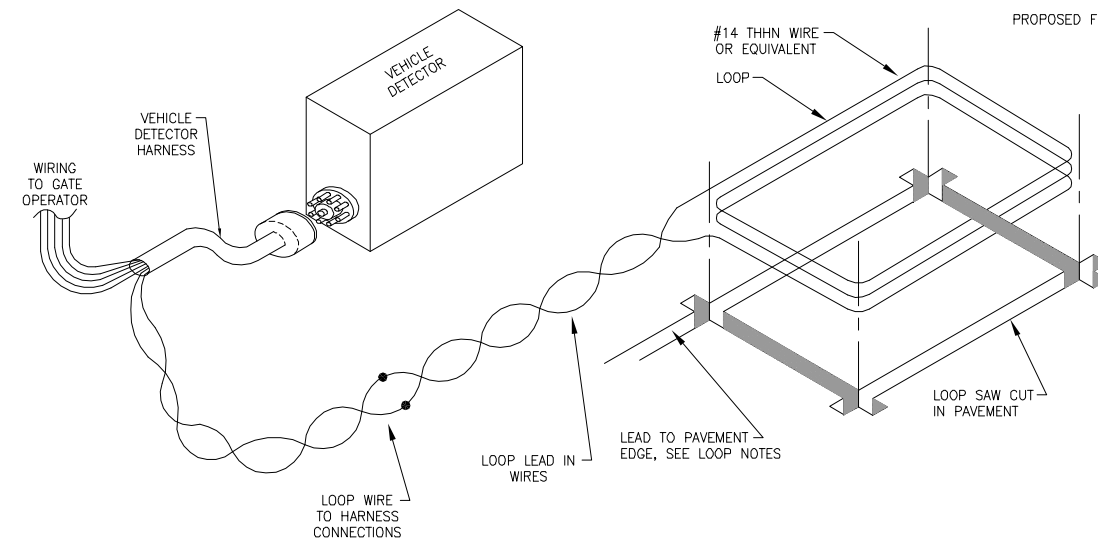


SAFETY LOOP INSTALLATION DETAIL

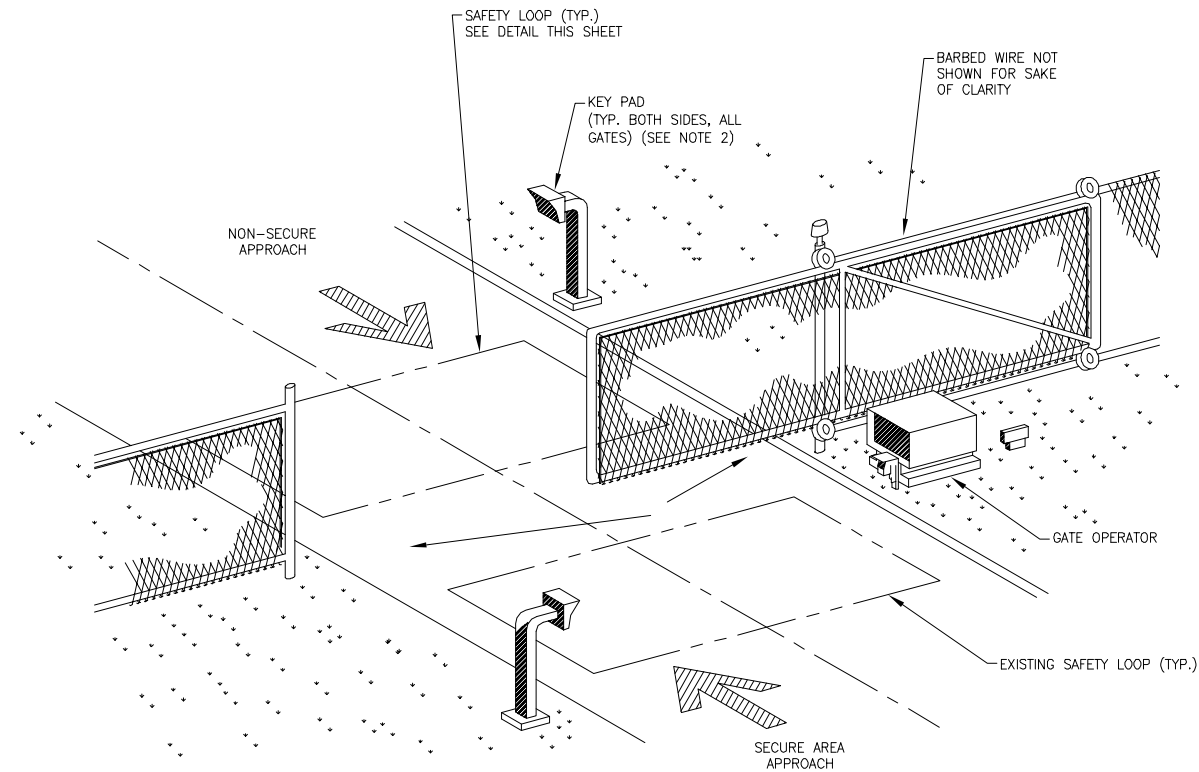
NOTE:

WHERE BITUMINOUS PAVEMENT IS NOT PRESENT THE DETECTOR LOOP SHALL BE PLACED IN 1/2" SCHEDULE 80 PVC.
DO NOT INSTALL LOOP WITHIN 2 INCHES OF ANY STEEL REINFORCEMENTS

FOR INFORMATION PUROSES ONLY.
NO NEW GATE, CONTRACT TO REPLACE
DETECTOR LOOP ON NORTH SIDE OF GATE ONLY.

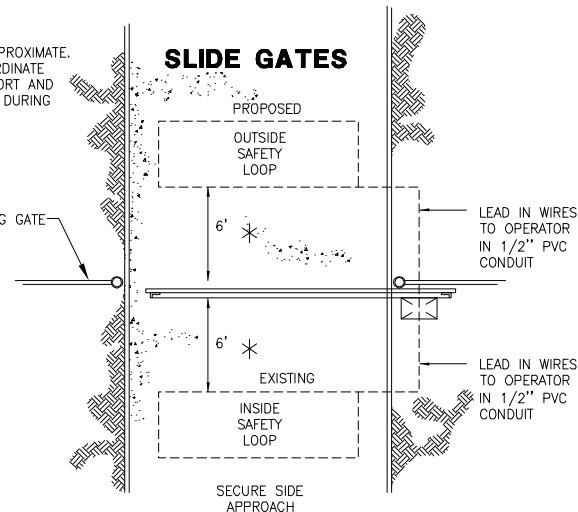


PROPOSED SAFETY LOOP DETECTOR INSTALLATION DETAIL



TYPICAL ELECTRIC GATE LAYOUT DETAIL

* LAYOUT AS SHOWN IS APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LAYOUT WITH AIRPORT AND ENGINEER PRIOR TO AND DURING CONSTRUCTION.



RS&H
IMPROVING YOUR WORLD

Reynolds, Smith and Hills, Inc.
4525 Airport Approach Road, Ste A
Duluth, Minnesota 55811
218-722-1227 FAX 218-722-1052
www.rsandh.com

RS&H
DULUTH INTERNATIONAL AIRPORT

**NORTH
BUSINESS
DEVELOPMENT
AREA**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature *Darren K. Christopher*

Typed Name DARREN K. CHRISTOPHER

Date 08/18/2009 Reg. No. 45052

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 08-18-2009
REVIEWED BY: MLS
DRAWN BY: JKE
DESIGNED BY: DKC

AEP PROJECT NUMBER
214-1882-077

© 2009 REYNOLDS, SMITH AND HILLS INC.

SHEET TITLE
**FENCING
NOTES
AND
DETAILS**

SHEET NUMBER
C802

**BID
DOCUMENTS**